

Assessing the Impact of Collaboration in Improving Students' Information Literacy Skills in the Digital Environment

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Abstract:

The technological changes in the mode of information flow have given rise to what is today known as the digital environment - an environment in which most students encounter great challenges to freely navigate in. This is because the nature of information resources that flow in the environment requires some basic skills which are referred to as information literacy skills. The complex process involved in acquiring information literacy skills demands collaboration among students. Collaboration is a learning strategy that allows students to work together with their peers to achieve a common goal. We examined this issue by assessing the impact of collaboration in improving students' information literacy skills in the digital environment. The paper is a literature-based research that highlights various information literacy skills required of students to adapt to the digital environment; identifies various collaborative platforms to enhance acquisition of such skills; discusses the relevance of collaboration among students; its challenges and strategies to improve collaborative learning among students.

Keywords: Collaboration, information literacy skills, digital environment

Introduction

Technological advances are defining a new approach to human lifestyles. Currently, people's mode of interactions, transactions, and learning at various levels of education has been influenced by the changes resulting from the advent of information technology. The global revolution in information technology gives rise to what is today known as the digital environment- an environment characterized by integrated communication systems where digital devices are used to communicate and manage the content and activities within it. A move towards this virtue environment is far evolving in the education sector. Odede and Zawedde (2018) observed that the use of electronic information resources is increasing rapidly especially within higher institutions of learning. The increasing rate of digital

information resources in the knowledge society and the high demand for its usage in institutions of higher learning has resulted in a steady evolution of students' understanding of the need to be digital literate. Moreover, research about digital literacy education has received much attention in recent years (Fu & Pow, 2011). The growing rate of online lectures, assignments, quizzes, conferences, and workshops organized by instructors, associations, and bodies are the evidence base of promoting digital learning in our educational sectors. Although, digital learning is becoming an increasingly popular option in modern education yet communicating effectively in the environment is still difficult for most students (Coner, 2020). However, Gantz and Reinsel (2012) revealed that the complexity of the digital environment is due to the exponential growth in the volume of digital information which requires that students possess some basic skills to understand and use it adequately. In this fast-growing knowledge society, information literacy skills have become one of the most important skills required of students because those with research information needs will most likely use electronic resources only if they have the skills required for their effective use (Odede, Israel and Zawedde, 2018).

Information literacy skills are skills that enable a student to understand the organization of information, identify appropriate information sources, locate these sources, critically evaluate the sources, identify needed information, retrieve the information and disseminate such information effectively. These skills are imperative for accessing information in this era as most of the information needed for research purposes is in electronic format (Adeleke & Emeahara, 2016). Significantly, Pow and Fu (2012) identified four relevance of information literacy skills to students. These include enrichment of their ability to access, evaluate, analyze, and synthesize multi-format digital texts; their ability to create media expressions using multi-format digital texts; the ability to communicate online;

and their awareness, attitude, and ability to use digital technology appropriately. But the complex nature of most of these skills and the necessity for students to acquire the skills and competencies to navigate effectively in the digital environment calls for collaborative learning among students.

Collaborative learning is a learning strategy that encourages teamwork among students to achieve a common goal through shared responsibilities. It is a set of teaching and learning strategies that promote student's collaboration in small groups (two to five students) to optimize their own and each other's learning (Johnson and Johnson, 1999). Collaboration among students is necessary as it allows students especially slow learners to learn from the fast ones. The need for collaboration in this technologically driven era cannot be overemphasized. This is because the ever-increasing growth of digital information sources in the knowledge society requires some basic skills (information literacy skills) for access and proper utilization, and one's inability to acquire the required skills deprived one of using the valuable resources. Hence, the paper focuses on various information literacy skills expected of students in the digital environment, and discusses the role of collaboration in acquiring the skills. The paper also outlines various collaborative platforms for improve information literacy, and finally discusses the opportunities and challenges for collaborative learning.

Concept of Information Literacy Skill

The exponential growth in information generation and its various forms of packaging have posed greater challenges in terms of information search, retrieval, and storage. The rapid change has given rise to networked and technology-assisted information which are highly demanded in all works of life particularly in education. Eisenberg, Johnson, and Berkowitz (2010) coincide that modern education is fundamentally information-based as every aspect of

teaching and learning requires the gathering, processing, and communication of information in a digital format. In the digital environment, accessing and retrieval of information requires some basic skills which are referred to as information literacy skills (Adeleke & Emeahara, 2016). Information Literacy skill according to UNESCO (2015) is the acquisition of basic knowledge, tool, and techniques of knowing where and how to find information, and be able to participate effectively in the research process. They are a set of skills that allows us to locate, evaluate, and filter out useful information and do away with the irrelevant ones. The skills include but are not limited to the ability to identify a problem, search for the relevant information, locate, access, evaluate information in one's domain, formulate ideas from information read and present it logically. These skills are indispensable for academic excellence among students at varying levels of education. Odede, Israel, and Zawedde (2018) warned that students may face great challenges to effective utilization of electronic information resources if they lack the skills required for its usage. Students are therefore urged to promote lifelong learning by acquiring information literacy skills to contend with the rapid information growth and navigate efficiently in the digital environment. For easy understanding of the information literacy skills, the paper adopts the Big6 approach of Eisenberg and Berkowitz (1992).

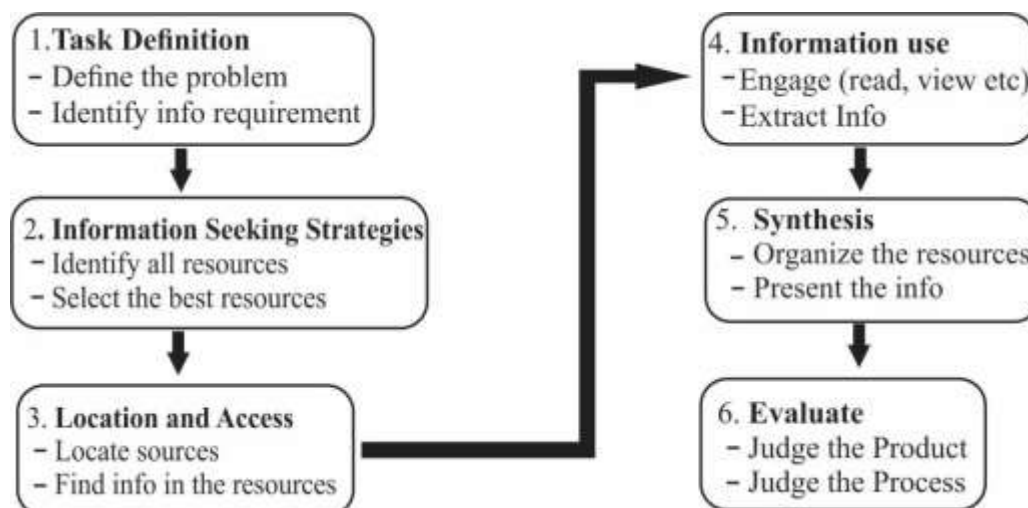


Fig. 1: The Big6 Approach

The above chart represents the Big6 model which is an embodiment of Information Literacy skills required of students in different categories. In the information age, students are faced with information-related tasks and the Big6 provides them with a comprehensive set of powerful skills to thrive effectively in the digital environment. Below is a brief explanation of the Big6 approach.

The first skill is task identification which is the ability to identify and define a problem as well as the information required for solving it. The second skill is the information-seeking strategies, which has to do with determining the information search strategy appropriate for the task. It includes the ability to choose from numerous sources the most important ones. The third skill bothers on the location of information resources and access to such information. When this is applied, the need for the fourth skill which is the ability to read and extract information from sources arises. This is followed by the fifth skill (synthesis) which concerns the presentation of information in an orderly and logical manner, while the sixth skill - evaluation gives the student the right sense of judgement in doing an overall assessment of the product (information presented) and the process.

Collaboration and Information Literacy Skills

For students to acquire the outlined set of skills, and attitudes to cope with the demands of today's knowledge society there is a need for collaboration. Collaboration is a coordinated effort of shared responsibilities among members to provide the solution to a problem. According to Freshwater et al (2006) collaboration is an essential approach required for the survival of university education in the digital world since it is a strategy that will expand a person's horizons, enhance a good lifestyle and make provision for both professional and personal networks for generations. Successful collaboration requires certain

skills known as collaboration skills. Collaboration skills enable one to successfully work towards a common goal with others (Doyle, 2020).

Amid the skills that foster positive collaboration among members are good communication skills, organizational skills, creative thinking/problem-solving skills, skills to set concrete goals, shared mental model which is described as a mutual understanding of the goals, timing, and scheduling issues (Bishop and Lenhart, 2016). In concurring to this, Doyle (2020) asserts that one of the must-have skills for successful collaboration is a clear and thoughtful communicative skill; because it is an act that brings implied thought to clear explanation in a collaborative task (Child & Shaw, 2016). It includes listening skills, writing skills, verbal and non-verbal skills. Having listening skills helps members in a team to feel comfortable in sharing information, build trust, grow their knowledge base which will help in detecting problems (Duwadi, 2014). Besides, organizational skill is another motivational factor to a successful collaboration. It is a set of techniques used by an individual to facilitate the efficiency of future-oriented learning, problem-solving, and task completion (Dawson & Guare, 2010). Also, Partridge, Menzies, Lee, and Munro (2010) are of the notion that for a successful collaboration, there is a need for creative thinking skills to stimulate creative problem solving and decision making and to create deeper comprehension of information that they are unfamiliar with. A report from OECD (2013) reveals that in collaboration, team members should be active to contribute effective ideas towards solving the task at hand. Finally, research skill is also necessary for collaborative work. It is the ability to search, collect, analyze, interpret and evaluate information that is relevant to the subject being studied (Zainuriyah 2009). To collaborate progressively, every team member requires research skill to be able to locate appropriate information about a topic, analyze, interpret and

evaluate the information and communicate the ideas in written and spoken formats in such a way that brings a solution to the problem under study (Paul and Jeanne, 2004).

Collaborative Platforms for Improved Information Literacy

It is worth noting that collaboration in the digital environment is encouraged by technological gadgets like the computers, internet, World Wide Web, and other web-based technologies. The Global Education Monitoring Report (2016) reveals that information and communication technologies have become inescapable in modern societies as tools for transforming the education system. Not minding that our educational system is faced with varied crisis and problems ranging from economic, political, socio-cultural, religious to ecological problems; like the case of the recent global pandemic (Covid-19) that disrupted the system, yet students' participation and engagement can be enhanced through social media, web-based tools and collaborative platforms (Kakderi, Psaltoglou, & Fellnhofer, 2018). This section of this paper focuses on the collaborative platforms that promote information literacy skills among students in the digital era. The platforms are but are not limited to the Zoho project, Wikis, Invision, Slack, Google workspace, Google Drive, Online whiteboard, and Fresh Connect.

Zoho Projects: This is a cloud-based project management tool that helps a student to plan his work, track it efficiently, and collaborate with other members of his team wherever they are. Zoho project can be used to store project files or other relevant documents, images, spreadsheets, or pdf. Documents stored in the Zoho project can be accessed by other team members. Its collaborative features include communication, file sharing, and team dashboard. The dashboard contains the team status. Task progress, task status, milestone ie how many work items are closed and how many are open.

InVision App: is a cloud-based digital product design platform, which serves as a prototyping tool that allows a designer to turn his design mockups into interactive prototypes which can be shared and viewed by other team members. It gives a better experience when sharing designs. By sharing a link of the design created through InVision, using the “comment mode, other team members can leave comments on any part of the design. This helps the designer to navigate to any section that needs changes.

Slack is a messaging app on steroids. It is a workplace made up of channels where team members can communicate and work together. Slack can be used across multiple devices and platforms and is equipped with robust features that allow you to not only chat one-on-one with associates but also in groups. In the Slack team, members send messages and share files in channels. Members can create channels for teams, projects, office locations, or anything else that is relevant to your organization. With slack, people can work together more effectively to connect all their software tools and services and find the information they need to do their best work- all within a secure, enterprise-grade environment.

Online Whiteboard: is a learning space where both teachers and students can write and interact with one another in real-time via the internet. Online whiteboards support team members to collaborate visually over distance in real-time. Each member of a collaborative team logs into the same online whiteboard space and can add his or her content, while others can see what he is doing in real-time and can interact if there is a need. This platform allows team members to move their collaborative activities to the next level and increase their productivity and creativity. Online whiteboard is either synchronous or asynchronous.

Blackboard instructor App: This is a virtual learning environment and learning management system developed by Blackboard. It is a collaborative platform that enables students to view the course content, grade assignments, connect with other students in

discussion, and interact with their team members in the blackboard collaborative space. The app is available for iOS and Android mobile devices.

Acquire App: Acquire is a unified collaborative platform that brings all communication, interactions, channels, and tools under one roof. With Acquire, teams can respond to customers instantly using live chat, chatbots, co-browse, video, and voice. E-mail, and SMS. Others include WhatsApp, Telegram, zoom, e-mail, Google workspace, Google Drive, and wikis. These platforms can broadly be classified into synchronous and asynchronous platforms. The asynchronous platform is a platform that requires team members to work together at the same time in the digital environment. It requires that the transmitter and receiver are present at the same time and/or space. In a chat room, people's comments to each other are relayed immediately, enabling a real-time discourse. Platforms under these categories allow a community of users to interact, chat or communicate life as well as get feedback instantly as in real-life situations through electronic media. Examples are Whiteboard, Zoom, Groupware, Skype, and Blackboard.

On the other hand, a platform is said to be asynchronous when the exchange of data between two or more parties can be made without the requirement for all the recipients to respond immediately. The asynchronous electronic media are those that allow communication between individuals or groups without instant feedback. These include e-mail, Private messaging, Discussion Board (forum), Wikis

Opportunities of Collaborative Learning

Significantly, collaboration offers students great opportunities for academic progress. Presently, there is a growing emphasis on project and inquiry-based learning. This is motivated by collaboration as it has an influential effect on students' learning and knowledge retention (Rojas-Drummond & Mercer, 2003). Having the capacity to collaborate is an

important component in project-based learning and an essential personal and professional skill. Group projects can maximize the educational experience by demonstrating the material while improving social and interpersonal skills (Partridge, Menzies, Lee, and Munro, 2010).

Because collaboration encourages the effective division of labor, integration of information from multiple sources of knowledge in different perspectives and experiences, it enhances creativity and quality of work of group members (Organisation for Economic Co-operation and Development [OECD], 2013).

Collaborative learning has been shown to not only develop higher-level thinking skills in students but boost their confidence and self-esteem as well. When students engage in a small group learning setting, they individually have the opportunity to express their ideas. Collaborative learning can help shy students express themselves more. Being able to do so improves their self-esteem and their academic attainment. Koutrouba, Kariotaki, and Christopoulos, (2012) aver that collaboration can have powerful effects on student learning, particularly for low-achieving students since it encourages the development of skills such as coordination, communication, conflict resolution, decision-making, problem-solving, and negotiation. Commenting on the impact of collaboration in promoting students' academic achievement, Agesa (2014) states that there is no such thing as an 'average' child, and collaborative learning plays to this. Agesa explains that collaboration gives weak or outlier students unique ways forward. It allows them to express their strength and skills, which are recognized and valued by other students in the group. Effective collaboration recognizes the merit of everyone in the group, allowing each child to work to their strengths and gain support from others when needed.

The potentials of collaborative learning to linking students of diverse cultural backgrounds together in a setting makes it a good forum for the development of social skills.

Child and Shaw (2016) submit that collaborative learning gives students from different backgrounds, races, or social upbringing the opportunity to work together and solve a given problem. They share different opinions and learn more about different cultures. Collaborative learning is ideal for students with difficulties in a social setting. This is because when a question is raised in a collaborative group, different students can have different answers enabling the group members to learn new things from one another and understand different perspectives (Tomasello & Hamann, 2012).

Challenges and Enhancement Strategies for Collaborative Learning

At times collaborative efforts of team members turn out to yield negative outcomes. The reasons as shown by various research conducted by previous scholars include but are not limited to lack of collaborative skills among members. Lack of collaborative skills may be one of the antecedents of the collaborative problems students often experience during collaborative learning (Webb, 2009). This is because it ignites other problems that may deter the progress of the team. Popov, et al (2012) identified communication problems as one of the problems caused by a lack of collaborative skills. Again, Low-quality coordination among group members when participating in problem-solving tasks is another issue resulting from a lack of collaborative skill. Research has shown that group members that lack collaborative skills hardly pay attention to other's opinions, they instantly interrupt members and reject alternative suggestions made by others without justifiable reasons. These inappropriate behaviors inhibited group functioning and individual learning (Ha, Jeroen, and Theo, 2018).

Another problem encountered by students during collaboration is the inability to organize collaborative activities and poor assessment of members' performance. It has been observed that team leaders often face challenges while structuring collaborative activities

such as monitoring students on-task behavior, managing group work time, assigning individual roles, and establishing teamwork beliefs and behavior (Gillies and Boyle, 2010). This could be as a result of insufficient attention of the team leader to organize collaborative work such as determining group norms and facilitating activities among group members (Ruys, Van Keer, and Aelterman, 2012). A study conducted by Chiriac and Granstorm (2012) reveal that when the criteria or rules of assessment lack transparency and concreteness it creates problem among members.

Lack of motivation is another problem that disrupts the achievement of collaborative goals. Lack of motivation among members could be due to misunderstanding of the topic of discussion, and posting an unedited post on the collaborative platforms. Capdeferro et al (2012) outline various demoralizing factors that could demotivate team members. Among these factors are posts containing grammatical/spelling errors, absence of real-time feedback, disagreement among members, withdrawal of group members, and lack of good communication skills among members.

Besides, Liu et al (2010) point out that lack of individual accountability and negative interdependence among collaborative students are serious problems demoting the progress of the group. According to them, student's incapacity to contribute much (that is being too lazy to work) to meet the deadline is a flaw in the group. Also, single students dominating the group scenario making others unwilling to criticize the team's work lowers the zeal for collaboration.

Above all, the irregular power supply is another issue of concern. For a successful collaboration in a digital environment, there is a need for a constant power supply. This is because virtually all collaborative platforms require electricity for proper functioning. Where it lacks, it obstructs the group's commitment towards achieving their set goals.

However, the various weaknesses characterizing student's collaboration can be strengthened by empowering students to create their norms. This could be possible by identifying what students need from their peers. Again, emphasizing student-to-student discussion to connect them to the learning process is another good strategy to achieve the collaborative goals among team members. There is also a need to provide a variety of engagement over large group discussions to enrich learning.

Conclusion

The paper concludes that acquiring information literacy skills is a prerequisite for students to effectively navigate in the digital environment. However, the complex process involved in acquiring the required skills calls for collaboration among students. These will enable students to learn from their peers to improve their information literacy skills to ensure adequate use of information resources in the digital environment.

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